



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,285	07/18/2003	Subhajit Dasgupta	42P17398	4597

8791 7590 04/01/2005

BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

SORRELL, ERON J

ART UNIT	PAPER NUMBER
----------	--------------

2182

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,285

Applicant(s)

DASGUPTA ET AL.

Examiner

Eron J Sorrell

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 28-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 28 contains the trademark/trade name "Ethernet." Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to

Art Unit: 2182

identify/describe a high-speed LAN protocol and, accordingly, the identification/description is indefinite.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5, 7, 8, 11-14, 19-21, 23, 24, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Van Wageningen et al. (US Pub. No. 2003/0152082 hereinafter Van Wageningen).

6. Referring to claim 1, Van Wageningen teaches an apparatus, comprising:

a plurality of flow controllable queues containing data to be transmitted, wherein the flow controllable queues are organized by flow (see figure 3 and paragraph 39 on page 3);

Art Unit: 2182

a plurality of destinations to receive data from the plurality of flow controllable queues (see paragraph 39 on page 3, wherein Van Wageningen discloses "output ports"); and

a controller to continually maintain an aggregate count of data ready for transmission to the destinations and determine next queue to transmit data from based at least partially on the aggregate counts (see paragraphs 43-46 on page 3, wherein Van Wageningen discloses the functions of the arbiter).

7. Referring to claim 2, Van Wageningen teaches the flow includes at least some subset of source, destination, protocol, and class of service (see paragraph 39 on page 3).

8. Referring to claim 3, Van Wageningen teaches the data is ready for transmission if the associated flow controllable queue is flow controlled (see paragraph 46 on page 3).

9. Referring to claim 4, Van Wageningen teaches the count for a particular destination includes flow controllable queues associated with the particular destination (see paragraph 45 on page 3).

Art Unit: 2182

10. Referring to claims 5 and 21, Van Wageningen teaches the next queue is one of the flow controllable queues associated with the destination having biggest aggregate count (see paragraphs 79 and 80 on page 5).

11. Referring to claim 7,8,11, and 12 Van Wageningen teaches the aggregate count for a specific destination is updated to add data queued when data is added to an associated flow controllable queue and the aggregate count for a specific destination is updated to remove data dequeued when data is removed from an associated flow controllable queue (see paragraphs 43-46 on page 3).

12. Referring to claim 13, Van Wageningen teaches the controller updates the aggregate counts each clock cycle to account for changes made to the associated flow controllable queues during that clock cycle (see paragraph 9 on page 1).

13. Referring to claim 14, Van Wageningen teaches the controller updates the aggregate count for a specific destination by adding data queued in a first associated flow controllable queue and subtracting data dequeued from a second associated flow controllable queue if the queuing and the

Art Unit: 2182

dequeuing occurred during the same clock cycle (see paragraph 9 on page 1).

14. Referring to claim 19, Van Wageningen teaches a method, comprising:

creating a plurality of queues based on at least some subset of source, destination, protocol, and class of service (see paragraph 39 on page 3);

storing data received in a first one of the plurality of queues based on the flow of the data (see paragraphs 43-46 on page 3);

removing data transmitted from a second one of the plurality of queues (see paragraphs 43-46 on page 3); and

maintaining a continuous aggregate count of data eligible for transmission to the destinations (see paragraphs 43-46 on page 3);

selecting a next queue to transmit data from based at least in part on the aggregate counts (see paragraphs 43-46 on page 3).

15. Referring to claim 20, Van Wageningen teaches the aggregate count for a particular destination includes queues associated

Art Unit: 2182

with the particular destination (see paragraphs 43-46 on page 3).

16. Referring to claims 23 and 24, Van Wageningen teaches the maintaining includes adding data queued to an associated queue, removing data dequeued from an associated queue (see paragraphs 43-46 on page 3).

17. Referring to claim 27, Van Wageningen teaches the maintaining includes updating the count each clock cycle to reflect any combination of data being added, data being removed, and flow control change made to associated queues during that clock cycle (see paragraph 9 on page 1).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2182

19. Claims 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Wageningen in view of Oelke et al. (U.S. Pub. No. 2003/0200330 hereinafter "Oelke").

20. Referring to claim 28, Van Wageningen teaches a store and forward device comprising:

- a plurality of line cards to receive, store, and transmit data, wherein the plurality of line cards includes a plurality of queues (see paragraphs 37-39 on page 3);

- a processor to maintain a continuous aggregate count of amount of data queued for the egress ports (see paragraphs 43-46 on page 3); and

- a scheduler to determine a next queue to service based at least in part on the aggregate counts (see paragraphs 43-46 on page 3).

Van Wageningen is silent on the line cards being Ethernet line cards including a plurality of ingress ports and a plurality of egress ports and a backplane to connect the plurality of line cards together.

Oelke teaches in an analogous system the above limitations (see paragraphs 18 and 19 on page 2).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the

Art Unit: 2182

device of Van Wageningen with the above teachings of Oelke. One of ordinary skill in the art would have been motivated to make such modification because Ethernet is a well known and widely used LAN protocol that supports high bandwidth data transfers and backplanes allows multiple cards to be connected to a common power supply.

21. Referring to claim 29, Van Wageningen teaches the scheduler selects the next queue based on the egress port having highest aggregate count (see paragraphs 79 and 80 on page 5).

22. Referring to claims 30, Van Wageningen teaches the scheduler selects the next queue per ingress port based on the associated egress port having highest aggregate count (see paragraphs 79 and 80 on page 5).

23. Referring to claim 31 Van Wageningen teaches, the processor maintains the aggregate count by updating the count each clock cycle to reflect any combination of data being added, data being removed, and flow control change made to the associated queues during that clock cycle (see paragraph 9 on page 1).

Art Unit: 2182

24. Claims 9,10,15-18,25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Wageningen in view of Ahlfors et al. (US Pub. No. 2002/0126683 hereinafter "Ahlfors").

25. Referring to claims 9,10,25, and 26, Van Wageningen fails to teach the aggregate count for a specific destination is updated to remove data associated with a flow controllable queue if the flow control for the associated flow controllable queue is deactivated and the aggregate count for a specific destination is updated to add data associated with a flow controllable queue if the flow control for the associated flow controllable queue is activated.

Ahlfors teaches, in an analogous system, updating a counter when a flow control for a flow controllable queue is activated or deactivated (see paragraph 42 on page 2).

It would have been obvious to one ordinary skill in the art at the time of the applicant's invention to modify the method of Van Wageningen with the above teachings of Ahlfors. One of ordinary skill in the art would have been motivated to make such modification in order to prevent allocating resources to an inactive queue as suggested by Ahlfors (see paragraph 42 on page 2).

Art Unit: 2182

26. Referring to claims 15-18, Van Wageningen teaches adding and/or subtracting values of counters subsequent to queuing and/or dequeuing of data during the same clock cycle (see paragraph 9 on page 1). Van Wageningen fails to teach adding and/or subtracting values from counters when queues become activated to deactivated.

Ahlfors teaches, in an analogous system, updating a counter when a flow control for a flow controllable queue is activated or deactivated (see paragraph 42 on page 2).

It would have been obvious to one ordinary skill in the art at the time of the applicant's invention to modify the method of Van Wageningen with the above teachings of Ahlfors. One of ordinary skill in the art would have been motivated to make such modification in order to prevent allocating resources to an inactive queue as suggested by Ahlfors (see paragraph 42 on page 2).

27. Claims 6 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Wageningen in view of Woo et al. (U.S. Pub. No. 2003/0112817 hereinafter "Woo").

28. Referring to claims 6 and 22, Van Wageningen fails to teach the aggregate count is a number of bytes.

Woo teaches, in an analogous system, the above limitation (see paragraphs 65-67 on page 7).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the method and system of Van Wageningen with the above teachings of Woo. One of ordinary skill in the art would have been motivated to make such modification in order to implement a byte fairness algorithm as suggested by Woo (see paragraphs 65-67 on page 7).

Conclusion

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art as it pertains to flow controllable queues in data transfer devices:

U.S. Pub. No. 2003/0016686 to Wynne et al. teaches a flow control mechanism comprising a plurality of queues, a plurality of destinations, and a controller to maintain a count of data to be transmitted;

U.S. Pub. No. 2003/0128703 to Zhao et al. teaches Ethernet line cards coupled to a store-and-forward switch comprising a plurality of queues, and a counter to maintain a count of data ready for transfer;

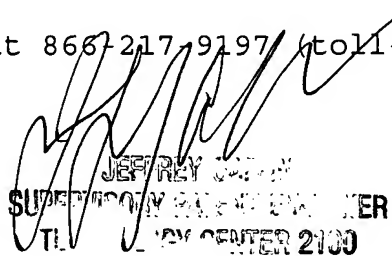
U.S. Patent No. 6,147,969 teaches a queue-length based flow control algorithm.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eron J Sorrell whose telephone number is 571 272-4160. The examiner can normally be reached on Monday-Friday 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be reached on 571 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EJS
March 16, 2005


JEFFREY A. GAFFIN
SUPERVISOR, PATENT EXAMINER
TELEPHONE CENTER 2100